IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:

Narihiro Tahara et al. Group Art Unit: 1714

Serial Number: 09/915,576 Examiner: Tae H Yoon

Filed: July, 13, 2001

For: RUBBER COMPOSITION FOR TIRE TREAD

DECLARATION UNDER 37 CFR 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Narihiro Tahara residing at 6-9, 3-chome, Wakinohama-ch o, Chuo-ku, Kobe-shi, Hyogo-ken, Japan duly deposes and says:

1. That he graduated from Department of In vivo Molec ular Engineering, Faculty of Engineering, Tokyo Institute of Technol ogy, Tokyo, Japan, in the year 1993, and he received the degree of Master of polymer Chemistry from Science and Engineering, Tokyo, Japan in the year 1995;

2. That since 1995, he has been employed in the capacity of Sumitomo rubber Industries, Ltd.;

3. That from 1995 he has been engaged in development for compound in the tread of the passenger car radial tire.;

4. That he has read and is familiar with the instant application for United States Letters Patent and Office Action thereto mailed September 1, 2005.; and

5. That he has made experiments in order to show when glass fibers are not blended, sufficient performance on ice, performance on snow and abrasion resistance are not obtained even if Aluminum hydroxide and/or silicone rubber powders are blended.

Experiment 1

A tyre tread was produced by folding repeatedly a sheet of 1mm thickness and 1.5 mm width obtained by rolling the rubber composition shown in Table 1. Vulcanization was carried out at 150 °C for 50 minutes. A tyre was molded and prepared using the obtained tyre tread. The rubber hardness, the dispersibility of carbon black, the performance on ice road, the performance on snow road and the abrasion resistance were measured in the same manner as Example 1 to 3 and Comparative Example 1 to 5 of the present specification. The results are shown in Table 1.

Table 1

	Experiment 1
Raw materials (parts by weight)	
NR	100
Carbon black A	60
Glass fibers	—
HIGILITE H43	5
Softener	26
Sulfur	1.2
Vulcanization accelerator	1.5
Mohs hardness of glass fibers	—
Average particle-size of carbon black	0.03μm
Mohs hardness of inorganic powder	3
Average particle-size of inorganic powder	0.6μm
Rubber hardness	55
Degree of dispersion of carbon black	GOOD
	98%
Performance on ice	100
Performance on snow	6
Abrasion resistance	GOOD
	107

Experiment 2

The sample and tyre made of composition shown in Table 2 were evaluated. The change with the passage of time, the performance on ice, the performance on snow and the abrasion resistance were measured in the same manner as Example 4, Comparative Example 6 to 9 and Prior Art of the present specification. The results are shown in Table 2.

Table 2

	Experiment 2
Raw materials (parts by weight)	
NR	100
Carbon black B	60
Glass fibers	—
Silicone rubber powders	10
Softener	25
Sulfur	1.2
Vulcanization accelerator	1.5
Change with the passage of time	A
Hardness before heat aging	55
Hardness after heat aging	58
ΔHardness	3
Performance on ice	100
Performance on snow	6
Abrasion resistance	100

Natural Rubber (NR): generally used RSS #3 grade.

Carbon black A: available from Showa Cabot K. K., N_2SA of 79×10^3 m^2/kg, DBP Oil Absorption of 102×10^{-5} m^3/kg, Average Particle-Size of 0.03 μm.

Carbon black B: N330 available from Tokai Carbon Co., Ltd., N_2SA of 83×10^3 m^2/kg, DBP Oil Absorption of 102×10^{-5} m^3/kg.

HIGILITE H43: available from Showa Denko K. K., Average Particle-Size of 0.6 μm.

Silicone rubber powders: available from Dow Corning Toray Silicone Co., Ltd., Torefil E850 (trade name), Average Particle-Size of 70 μm.

Softener: Rubflex 26 available from Shell Chemical Co., Ltd.

Sulfur: available from Tsurumi Chemical K. K.

Vulcanization accelerator: Nocceller CZ available from Ouchishinko

Chemical Industrial Co., Ltd.

Result and Discussion

In Experiment 1, blending Aluminum hydroxide having an average particle-size of less than 25μm provides a high dispersibility of carbon black and abrasion resistance, but the sufficient performance on ice and performance on snow are not obtained since glass fibers are not blended.

In Experiment 2, blending silicone rubber powder prevents obtained tyre from increasing the change with the passage of time, but the sufficient performance on ice and performance on snow are not obtained since glass fibers are not blended.

The undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

This 8th day of February, 2006

by Narihiro Tahara

Narihiro Tahara

We, the undersigned witnesses, hereby acknowledge that Narihiro Tahara is personally known to us and did execute the foregoing Declaration in our presence on:

Date: February 8, 2006 Witness Yutaka Sakon

Date: February 8, 2006 Witness Kazuoki Morita